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Harnessing Hydro

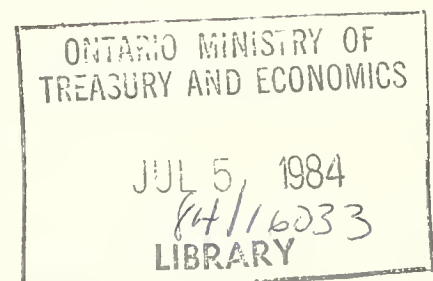
Report of the
Ontario New Democratic Party Caucus
Task force on Hydro
June, 1984
Donald C. MacDonald, Chairman



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Legislative Building
Queen's Park, Toronto
M7A 1A2**

(416) 965-3311



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Foreword

Hydro is a corporate giant which dominates the economy of the province and the government's fiscal policy. Its assets are the largest; its work force the biggest; and its debt as large as that of the province itself.

But the giant is experiencing severe financial difficulties. It persists in a massive over-expansion of its system far beyond domestic power needs, resulting in surplus generating capacity. In order to accommodate more than a doubling of its nuclear units — from eight to 20 during the current decade — it has had to cancel, defer or mothball nearly 40 units of one kind or another, at a cost of over \$2 billion (see footnote 8). The new nuclear units represent an expenditure of \$22 billion which will more than double Hydro's current debt.

Hydro, therefore, has a serious cash flow problem. With the prospect of slow growth in electric power consumption (Hydro's own estimate is an annual average increase of only 2.4% through to the end of the century), revenues will have difficulty keeping up with added operational and interest costs. That being the case, Hydro's oft-repeated goal of keeping rate increases within inflation levels is a pipe-dream.

Hydro simply cannot afford conservation. Its policy thrust is a multi-million dollar advertising campaign to boost sales. Live Better Electrically has given way to Barking Dogs and Talking Furnaces, a relentless succession of gimmicks to forestall an unbalanced budget. It costs less, and creates more jobs, to save a kilowatt of power through a more efficient use of existing energy, but Hydro is still committed to the old approach of building more costly generating capacity.

Hydro intends to borrow \$65 billion over the next 20 years, \$40 billion of which will be used to roll over old debt, and \$25 billion of which will be used to finance new and current projects. Hydro estimates its long-term debt will be \$43 billion in the year 2003.

Theoretically, Hydro is headed for bankruptcy. If it were a private corporation, that would be its fate. But it won't happen because Hydro is underwritten by the province of Ontario. However, the people of the province will have to shoulder the burden of carrying this oversized system and the cost of paying it back. They will be "taxed" through rate increases which the Hydro Board of Directors has the exclusive right to fix, subject only to advice from the Ontario Energy Board (OEB) which Hydro has no legal obligation to heed. The government has neither the will, nor the capacity, to bring Hydro under control and to fit electric power into a rational, modern energy program. The following pages indicate what that energy program should be, and how Hydro can, and should, be fitted into it.

I Introduction: The Broad Energy Goals of the New Democratic Party

The supply of energy is vital to everyone in Ontario, because it has an impact on every part of our lives. We all have a stake in ensuring that energy supplies are managed in the public interest.

Energy supply in Ontario is dominated by imported oil and natural gas. Electricity represents only 16 per cent of Ontario's end-use energy consumption. Even with intensive promotion of the use of electricity, Hydro expects that percentage to rise only to 20 by the end of the decade.

What this means is that, in Ontario, energy policy must be directed towards the achievement of greater efficiency in overall energy consumption. Making Ontario more energy efficient will require an extensive off-oil program, supported by more stringent energy-saving building codes and more efficient use of petroleum products in cars, trucks, tractors and other kinds of motors. Greater efficiency in the use of all forms of energy will require a substantial commitment to aggressive conservation programs by utilities, government ministries and the crown corporations responsible to them. In particular, this will require policies and procedures which will lessen, if not eliminate the cost of conservation to the consumer. That cost is the major disincentive today.

In anticipation of the day when non-renewable energy sources will be exhausted, greater emphasis must be placed on the development and marketing of renewable energy: production of gas, heat and/or electricity from waste materials, including garbage; generation of energy and heat from indigenous sources such as lignite and peat; massive development of bio-energy — notably liquid fuels to supplement and/or replace gasoline in motor vehicles; and the development of heat from passive solar installations for all forms of space and water heating.

In addition, energy has a number of special characteristics which mean that it must be subjected to public control — energy sources, renewable and non-renewable, are natural resources and therefore in the public domain; the transmission and distribution of most forms of energy is a classic natural monopoly in which economies of scale make competition inefficient; energy is a necessity of life; non-renewable sources of energy are limited; and lastly, the by-products of consumption and production contribute significantly to environmental degradation.

Taken together, these propositions add up to a compelling case for the redirection of energy production and consumption into a soft energy path, that is, one which will emphasize conservation in production and consumption from renewable sources.

In this context, then, proposals for handling electricity in Ontario must be judged on the basis of their ability to deliver a soft energy path future. Hydro's future mandate and structure depend on a judgement about its adaptability and its accountability as a public corporation.

To the extent that Hydro can be made truly accountable, the task is one of deciding what its new mandate should be and how that greater accountability can be achieved. To the extent that Hydro as a corporation is inherently incapable of becoming a soft path promoter, the utility itself will have to be restructured and new institutions developed.

II Hydro's Current Mandate and Scope of Operations

Hydro's current mandate, as set out in the Power Corporation Act, is technically restricted to the generation and transmission of power.

Beyond this basic mandate, however, Hydro is involved in an ever-expanding range of other activities connected with the nuclear power program. This expansion of Hydro's role has transformed it from an electrical utility to a major corporation in Canada's nuclear industry.

As such, Hydro has entered into new activities such as:

- making and selling cobalt isotopes
- building facilities for extracting tritium from heavy water
- contracting for outside firms and foreign utilities
- consulting on the development and operation of CANDU-based systems in the third world

Hydro is in the process of institutionalizing this growing range of activities through the establishment of a New Business Ventures Division.

In addition, Hydro is expanding its marketing activities into new fields in an attempt to absorb some of its huge surplus of nuclear generating capacity, for example steam production and promotion of industrial conversion to electricity.¹

Although Hydro's broader function as an agent of government economic policy has never been made explicit, Hydro's capital spending has made it a development tool for the government. For example, the accelerated timetable for the construction of Darlington was the most important element in the government's so-called BILD program, which was announced shortly before the 1981 provincial election was called.

III Policy Area No. 1: Energy Goals and the Structure of Ontario Hydro

Taken together, the changes in policy which we have outlined in our introduction add up to a massive shift in the approach of the government to energy policy and to the role of Ontario Hydro in determining and implementing that policy.

"Enhancement of efficiency" would replace "production to meet any demand" as the prime focus of energy policy. And the emphasis in energy production itself would shift away from Hydro's current preoccupation with nuclear power towards less capital intensive alternatives — many of them small-scale — based on renewable power sources.

The "enhancement of efficiency" function would be separated from Ontario Hydro and delivered by a separate crown agency responsible directly to the Ministry of Energy. Control of the system itself would be substantially decentralized by giving greater independence to strong democratically accountable local public utilities. And the system's actual operations would be decentralized by giving fair access to the power grid as producers to local public utilities, non-conventional energy producers, and businesses with surplus energy to sell. This latter group would range from farmers to industrial corporations which generate power for their own use.

Other changes which we are recommending will make it impossible for Hydro to function as it now does, with extremely limited public scrutiny and accountability, and with a free rein in effect to establish energy policy for Ontario on its own. The power of the Ontario Energy Board will be increased to include a regular review of the effect of Hydro's capital expansion program on rates. Energy Board orders will be made binding, subject only to the same appeal to Cabinet allowed the natural gas industry.

At the policy and planning level, the Ministry of Energy must take full responsibility. It should not be permitted to hide behind decisions of the Ontario Hydro board of directors. Legislation would require the establishment of an ongoing committee of the Ontario legislature to review the performance of the Ministry of Energy and of the crown agencies responsible to it. That committee would be required to hold public hearings in which public interest representatives would participate.

It may be that these energy goals can be achieved without substantial changes in the structure of Ontario Hydro itself. Other utilities in North America have found it possible to adapt to the new demands posed by a society which is more conscious of efficiency in energy use and less able to put up the large and growing capital costs associated with large-scale energy development.

There is some evidence to suggest that this transition will be a difficult one for Hydro to make and that some structural change will be necessary to ensure that our energy goals are met.

Large organizations like Ontario Hydro have a tendency to develop an institutional preoccupation, a focus for the entire organization that, while it may not replace other considerations, certainly dominates them. In the first years of Hydro's existence, the preoccupation was the assembly of the distribution network. That was gradually replaced with a focus on the development and implementation of the technology of hydroelectric energy production which reached its peak in the early-to-mid 1950's. From that point, the importance of nuclear power to Ontario Hydro began to grow until, by the early 1970's, it had totally superseded hydroelectric production as an organizational focus.

The accomplishments of Hydro as an organization in each of these eras should not be underestimated. In each era in its turn, Ontario Hydro

became a world leader in the activity which at that time was its focus. Nor should it be assumed that, because nuclear power or hydroelectricity may have been in ascendancy at any particular time, nothing else was being done. Each major focus of Hydro's activities over the years has been the outcome of ongoing internal competition for attention and funding.

The essence of policy making is the making of choices. To date, in Ontario, those choices have been made by Hydro in private. There has been a limited public review of the outcomes of those choices, through the Select Committee on Ontario Hydro Affairs and the Ontario Energy Board, but ultimately the choices have been made in private. Hydro decides what weight will be given to conservation or to research into alternatives to traditional energy sources, as opposed to nuclear power development.

The problem isn't simply that we believe that the choices Hydro has made are wrong. The structure of Hydro itself is a problem. It mitigates against those choices being made openly and fosters a unity of purpose that is inappropriate in an era of scarce resources in which the need is for diverse and creative responses to problems.

To the extent that the regulatory and policy review changes which we recommend are capable of forcing those choices into the open, and to the extent that government exercises its policy making responsibility effectively, our objectives can be achieved by limiting Hydro's scope for independent action.

To the extent that Hydro is able to hold onto its virtual monopoly on decision making and priority setting, structural changes will have to be made.

IV Policy Area No. 2: Conservation and Renewable Energy

Today the overwhelming proportion of Ontario's investment in energy development and marketing is focussed on electrical power, notably nuclear. To achieve the broader energy goals that we have identified earlier there must be a redirection of public policy along the soft energy path, characterized by extensive development of economically efficient renewable energy sources coupled with a strong commitment to cost-effective energy conservation. This would benefit Ontario not only in reducing the need for expanding the electrical system but also in reducing Ontario's dependence on imported oil and gas.

1) Conservation

Conservation should become the central thrust of Ontario's energy policy. However, Ontario Hydro should not be given the lead in the development of energy conservation programs. Given Hydro's current surplus generating capacity and its massive system expansion program, Hydro cannot afford conservation. Its programs are designed to promote the use of electricity.

Therefore the lead responsibility for conservation must be placed with the Ministry of Energy or crown corporation(s) responsible to it. This agency would be directed by the government to implement conservation programs with specific targets for reduction of energy use.

With respect to specific policy ideas, there are two approaches worthy of consideration and implementation.

The first approach is the development of a zero-interest conservation loan program that would help finance the conservation of residential, commercial and industrial properties.² The implementation of this program would be carried out by the local utilities (or local municipalities) and the regional energy utilities, who would be responsible for audit services. Energy specialists would design retrofitting measures most suited to each property. The program would be financed from the capital market, using some of the borrowing capacity that would be opened up through the cancellation of Darlington, supplemented when, and if, necessary, with an energy tax and/or a profit tax on uranium mining.

The second approach to energy conservation that deserves attention is the development of a program under which the conservation agency (either the Ministry of Energy or a crown corporation) contracts with an energy conservation company for the retrofitting of buildings.³ This type of conservation program would be particularly effective for industrial and commercial properties where large energy savings can be realized, but may also be used for homes. The conservation agency contracts with private companies to guarantee energy savings through conservation measures on commercial, industrial and residential properties such as multiple apartment units. If there are no savings, the retrofitting company is paid nothing. The guaranteed savings are shared between the bank and the retrofitting company for a period of time, after which they revert to the owner of the property. This approach has proven financially attractive both to private retrofitting companies⁴ who find that they can make a profit and to the utility which avoids expenditure on new generating facilities.

2) The Development of Small-Scale and Renewable Energy Production

In parallel with conservation programs, development and marketing of renewable energy would be encouraged, both through public development and through the opening of access to the system to potential small-scale energy producers. This would include programs to encourage wind generation on the farm and in the north; small-scale development by individuals and local utilities; solar electrical generation in the cities; electrical and steam generation from waste, both municipal and industrial, the latter involving extensive development of co-generation.

In order to facilitate the development of these sources, potential small producers of energy must be assured of access to the grid for their surplus production. Hydro currently has a discriminatory pricing practice of

paying only 1.7 cents per kilowatt/hour for electricity fed into the grid while charging from 4½ cents to 11 cents for electricity taken from the grid.

For example, in remote grid-fed communities there is a great potential for wind and wood-fired generation of electricity which private developers would be willing to build if the utility offered to purchase this power at fair rates. This is not only true of the far north, but also in the heavily industrialized Sudbury region and many areas around the Great Lakes where wind velocities are consistently great enough to render generation feasible. But this potential will be realized only if Hydro establishes fair power purchasing rates.

Ontario should pass legislation along the lines of the U.S. Public Utilities Regulatory Policies Act (PURPA). This would assure small producers of payment at 'avoidable cost' levels, a price approximating replacement cost. This would create a great incentive for widely dispersed and innovative generation of electricity, thereby reducing the need for new and costly generating capacity as well as transmission lines to carry the power from the central generating plants to the market.

To the extent that conservation and renewable energy from Ontario sources may not meet the needs of a reliable system, the gap between supply and demand should be made up by importing hydraulic-generated power from Quebec and Manitoba.

V Policy Area No. 3: Role of Local Utilities

There is a great variation among the 324 municipal utilities in Ontario. Some are large, sophisticated organizations in their own right, while others are so small that they are totally dependent on Ontario Hydro for operational assistance.

The variation extends to the manner in which utility members or commissioners are chosen. For three of the largest (Toronto, Hamilton and Ottawa) commissioners are appointed, a number by the municipal council but a majority by Ontario Hydro. Most other utility commissions are directly elected at municipal elections.

All utilities have two characteristics in common, however. They have limited autonomy, because many of their decisions — including establishment of rates — are subject to confirmation or veto by Ontario Hydro. And there are no clear channels for public accountability.

Municipal utilities should be democratically accountable to the people they serve. Consequently, all members of utility commissions should be either directly elected or appointed by and accountable to committees of the elected local council with the choice being a local option.

Local utilities should be guaranteed the right to distribute electricity to all customers within their jurisdiction. This requires a clarification of the

status of industrial customers. The utility should have the right — indeed the obligation — to serve large customers, and they should be assured of this right rather than have major power consumers being encouraged to seek withdrawal from the local utility because they can get power cheaper by direct service from the wholesale distribution network. This simply results in a large rate burden being loaded onto the smaller utility consumer.

The less centralized control of Hydro would be facilitated by expanding the role of the local utilities. As part of this expanded role, local utilities would encourage development either by themselves or private interests, of new energy sources in their region — solar, wind, biomass, co-generation, and particularly hydraulic — to supplement their electricity supply and reduce their demand on the grid. Private producers would have access to the local system for sale of surplus electricity. Local utilities participating in these programs would have access to capital through a central agency borrowing on the credit of the province.

Since local utilities have direct contact with the overwhelming majority of electric power consumers, they could become the agencies for implementation of conservation programs. Where the local utility is unable or unwilling to participate in the conservation program, the local municipality should be encouraged to run the program.

Direct Hydro customers which reside outside the distribution systems of the municipal utilities have no organization to represent their interests and concerns. Consideration should be given to the establishment of regional energy utilities which would provide an organization structure comparable to the municipal utilities. These regional utilities would establish a working relationship with Hydro, much the same as that of the smaller municipal utilities, and would, among other things, be responsible for implementing conservation goals in the rural areas.

VI Policy Area No 4: Reform of the Rate Structure

Ontario's electricity rate structure must be reformed. In an era in which extraordinarily high capital costs and potential raw material shortages place a premium on conservation and efficiency in energy use, Hydro has a rate structure which encourages consumption.

The present rate structure is based on average system costs with rates that decline as consumption increases. This assumes that the cost of production of electricity per unit goes down as the volume produced increases. While that may have been true in the past it is emphatically not true today.

Currently, Ontario Hydro has a significant number of nuclear power plants under construction. The impact of the large capital construction costs of these plants have not yet been incorporated into the present rate structure. Hydro's policy is to integrate these costs at the time when the plants come

into service. This policy has led to a rapid and costly expansion of Hydro's generating system, the effects of which have not yet been felt by the consumer.

One of the most important goals of rate reform is to make the costs of generating new electricity apparent to the consumer, thereby sending out the correct pricing signal and encouraging the efficient use of electricity. It is also important to distribute the costs of electricity more equitably.

There have been a number of different proposals for rate reform discussed in Ontario. These include the following:

- the substitution of a single rate structure for the current declining block rate structure. This would mean that the price per kilowatt hour would be the same no matter how much electricity was used. This proposal would eliminate volume discounts for bulk power users.
- the adjustment of the demand/energy ratio for large consumers.⁵ The current ratio means that rates are determined for large consumers both on the basis of the total amount of energy consumed (the energy charge) and the customer's monthly peak of electricity consumption (the demand charge). A change in this ratio, which would increase the importance of the energy charge, would more accurately reflect the customer's overall use of the system.
- the introduction of time of day and seasonal rates.⁶ This proposal would increase the price of electricity at specific times of the day or year when electricity use is most popular. This type of pricing would encourage consumers to use the system at times when the demand is not so great.
- the change in average cost pricing to marginal cost pricing.⁷ This change would incorporate the costs of adding new generating capacity to the system, and would considerably increase the cost of new electricity.
- the proposal for lifeline rates. Lifeline rates would mean that financial help would be given to those least able to afford electricity.

There are two proposals for rate reform that we feel deserve to be given priority — the implementation of a single rate structure and of financial assistance for those least able to afford high electricity rates. While the other changes each have advantages and disadvantages, the impact of these changes would have to be considered in the context of the major change we are proposing here.

First, customer classes should be abolished at the bulk power level and a single rate structure should replace the current declining block rate

structure. There is nothing scientific about grouping customers: it is purely arbitrary; and it serves no other purpose but a clandestine subsidization of large users. It is grossly inequitable for Hydro to sell power at a higher bulk rate to local utilities than it does directly to major power consumers. This price differential is leading major power users to seek withdrawal from local utility services and get their power directly from Hydro. That, in turn, throws a greater burden on the local utilities whose remaining customers will have to cover the loss arising from the major user's withdrawal. It is yet another example of how the small consumer subsidizes the large user in many ways throughout Hydro's rate structure. The flat rate structure should be phased in so as to give major power consumers time to reduce their consumption through conservation measures.

Second, at the OEB rate hearings (1977-79), the consensus was that the responsibility for any redistribution of income through power rates is a social policy, and therefore the responsibility of government. Hydro has been exercising that responsibility in favour of large users. One group that should be given preference is users with low incomes. To ensure that all consumers have an incentive to conserve, it would be preferable to give low income consumers financial relief from high electricity rates through an income-tested energy tax credit rather than through lower rates.

Differential Between Urban and Rural Rates

Prior to the 1981 election, the government finally acknowledged the inequity in the 30 per cent differential between urban and rural rates and instructed the ministry and Hydro to come up with proposals for its elimination. Hydro's reaction was that the differential should not be reduced below 15 percent because of the higher costs involved in delivering power to its direct customers in rural areas. Interestingly, seven of the 10 provinces have homogenized their rates so that the costs are shared by all, and the differential in rural and urban rates is removed. It is also interesting to recall that in the early years of Hydro, preferential bulk power rates were extended to utilities closer to Niagara. Relentless protest by utilities in the hinterland of the province eventually resulted in a common bulk power rate for all. There is validity in extending the same principle today so as to remove the remaining 15 per cent differential between urban and rural rates.

VII Policy Area No 5: Accountability of Ontario Hydro

Despite the fact that electricity represents only 16 per cent of Ontario's energy consumption, Hydro has dominated energy policy. Decisions are made in private by the corporation, with little involvement from the public or even from the government. Reviews of Hydro decisions by the Ontario Energy Board, the government, the legislature, royal commissions and select committees have essentially been of an advisory nature. In the final analysis, Hydro shapes policy in keeping with its corporate needs.

Hydro's monopoly of decision making and priority setting is no longer tolerable.

More effective means must be established for genuine involvement and accountability. Furthermore, there must be clear policy directives regarding goals and the fixing of responsibility for their realization.

1) Regulatory Accountability

Hydro's relationship with the Ontario Energy Board is highly anomalous. The Board's reports are purely advisory; Hydro need not accept their conclusions. This is a strange exception because the board's recommendations following other hearings (such as those with the gas companies) are mandatory — subject only to Cabinet intervention when, and if, it is deemed politically necessary. There is no reason why Hydro should continue in this privileged position of being a law unto itself. This exceptional status to Hydro should be rescinded.

The government has refused to permit the Ontario Energy Board to consider expenditures associated with the system expansion program, even though they represent almost half of Hydro's budget. This is a ludicrous exclusion. As the OEB reported (HR 11, August 31, 1982):

"System costs are heavily impacted by the capital program and little can be done by the Board in the way of economy measures to reduce such costs without effective participation in the determination of the system expansion program."

The OEB would be required to consider system expansion costs in its regular review of Hydro.

Public interest intervenors at the OEB hearings should be supported financially to ensure a balanced presentation.

2) Regulatory Review Of Consumer Rates

Retail consumers (commercial and industrial as well as residential) have no access to the Ontario Energy Board in rate cases since the annual hearings consider only bulk (wholesale) power rates. Theoretically, the consumers' interests are espoused by the Ontario Municipal Electric Association but its interests are primarily those of the local utilities rather than the retail

consumer. Retail rates are presently established by approval (in private) by the Ontario Hydro board of directors. Retail consumers, notably residential, must be brought into the process.

At the most important level, the establishment of wholesale rates, retail consumers must be encouraged to participate through effective public funding for public interest intervenors at Ontario Energy Board hearings. For retail rates, the principle should be that where possible the final decision on rates should rest with a local democratically accountable body.

About 70 per cent of Ontario's electricity is retailed by the 324 municipal utilities. But 85 per cent of those sales are handled by the 40 largest utilities. Those large utilities should have the power to set their own rates. At the other end of the scale, there are 162 utilities which have fewer than 1,000 customers a piece and rely heavily on Ontario Hydro for technical and financial expertise. These smaller utilities, and at least initially the new regional utilities, should be left under the supervision and direction of Ontario Hydro. They would set their rates in conjunction with Hydro and subject to a rates policy determined by the Ontario Energy Board in public hearings.

3) Legislative Accountability

There is an urgent need for the electricity system to be brought under continuous legislative review in the fashion that occurred during the existence of the Select Committee. There should be a standing committee of the legislature with exclusive responsibility for reviewing the policies of the Ministry of Energy and the performance of that ministry and crown agencies in implementing those policies. The committee should be adequately staffed to conduct an in-depth review, and should hold public hearings at which public intervenors could appear and present their views.

All nominations to boards or agencies in the energy field, including Hydro, should be confirmed by a legislative committee in the hope of achieving a better balance among board members. While political responsibility for mounting a more vigorous conservation program and development of renewable energy sources should be placed with the Ministry of Energy, Hydro can, and must, play a major role in their implementation. Inclusion of persons with established reputations in these fields on its board will give greater assurance that new policy directions will not be frustrated at the level of implementation.

4) Governmental Accountability

The Ministry of Energy has and must exercise responsibility for energy policy in this province. It is not acceptable for the ministry to delegate virtually all of the government's energy policy formulation and implementation to a vested-interest agency such as Ontario Hydro.

The Power Corporation Act stipulates that all major decisions by Hydro, with reference to borrowing, purchase or sale of property, authorization of

new plants, etc. are subject to prior approval by the Cabinet. However, this has proven to be ineffective. The government has shown neither the will nor the capacity to subject Hydro's proposals to tough independent review and assessment.

The act should therefore be amended to require that Cabinet approvals be reviewed by the standing committee on energy referred to above.

5) Environmental Assessment

Hydro has evaded public accountability by applying for and receiving exemptions from the Environmental Assessment Act. Although this act was introduced in order to allow full discussion of options and to ensure that the planning for major projects was given thorough public review, Hydro has bypassed the act with the approval of the Ministry of Environment for such major projects as Darlington. Hydro should be accountable to the public through this legislation, and all major energy undertakings should be subjected to review under the Environmental Assessment Act.

VIII Employment in the Electricity Production and Distribution Industry

One of the more dramatic side-effects of Ontario Hydro's shift towards nuclear generation, the overexpansion of Hydro's ability to build and supply nuclear generating stations and the centralization of control facilities on the transmission and distribution end of the system has been widespread and sizeable dislocation in Hydro's work force, both on the construction side and on the operations side.

After an extremely rapid expansion in employment in construction in the 1970's, when Hydro expanded its productive capacity far beyond the need, construction employment in Hydro is declining rapidly even with Darlington still under construction. And employment projections submitted to the Ontario Energy Board in 1983 indicate that the utility plans a substantial reduction in the numbers of people employed in operations over the next 15 years.

The substantial fluctuations in construction employment are the direct result of errors in planning and forecasting in the early 1970's combined with the government's unwillingness to force Hydro to face reality. The longer-term reduction in employment contemplated in the projections are a consequence of the growing capital intensity of Hydro's generation and distribution network.

An energy path for the future that emphasizes conservation and the development of renewable alternatives will actually increase total employment in Ontario in the energy industry. Soft path futures are more labour intensive, both at the level of manufacturing and at the level of energy production. There will, however, be dislocations in the transition.

The problems we face in dealing with Ontario Hydro's approach and role in energy policy were not caused by the employees in the energy industry. They were caused by poor planning and mismanagement, problems that are ultimately the responsibility of the government. The employees should not, and cannot be forced to bear the brunt of the government's mistakes.

Specifically, transition policies would be conditional on a guarantee to all affected employees of the opportunity for alternative employment at comparable wages through measures including fully paid retraining, relocation assistance, full compensation for losses in housing values, and pension portability.

FOOTNOTES

1. In the mid-seventies there was a striking contradiction in the government's attitude toward major expansions of Hydro's activities; it vetoed the Hydro board's recommendation for taking over Elliot Lake mines to ensure a guaranteed long-term supply of uranium for its growing nuclear component, and yet it authorized Hydro's expansion into a massive heavy water production so as to ensure an adequate supply of that necessary ingredient for generation with the Candu system.
2. This is the program which has been developed and implemented by the Tennessee Valley Authority (TVA). The TVA has found that the subsidy to cover the zero-interest loans, combined with other personnel, administrative and supervisory costs, all add up to only \$300 kilowatt (kw) per of energy saved, as compared with, for example, the \$3400 per kw to build new nuclear generating facilities like Darlington. Therefore TVA views conservation as an 'energy source' replacing the need for building much-more-costly generating capacity.
3. This program would be based on the model pioneered by General Public Utilities (GPU). GPU earlier experimented with a program which encouraged property owners to contract with retrofitting companies (at no capital outlay by the owner) and share the savings over a period of years. But GPU has now forsaken that program in favour of the utility itself entering into the contract with the retrofitting company. This provides the utility with greater control over the program, ensures higher quality work and therefore greater savings. With utility sponsorship, GPU contends that the costs are one third to one half lower, and the benefits are five times the cost.
4. In Ontario, a number of companies are now entering this field. They include Engineering Interface, a private company which is working with Canertech Conservation, a federal crown corporation now operating in Quebec, N.S. and P.E.I.; Maple Leaf Petroleum, a joint venture of Imperial Oil and Moffatts Engineering; and Petrosave, a private company which has been loan-funded by the Ontario Energy Corporation. But there are serious limitations in the proposed Ontario operations. To date, none of these companies is considering the residential field, other than large apartment complexes. Their focus is restricted to properties with an annual energy bill of \$100,000 or more, such as Maple Leaf Gardens or municipal buildings. Furthermore, in Ontario the Ministry of Energy is only now considering what its role should be in such programs. Unlike TVA and GPU, Hydro as the utility in the field has taken no initiative other than its Residential Energy Advisory Program (REAP) which seeks as much to expand the use of electricity as to conserve it.

5. Currently Ontario Hydro's bulk rates to local utilities are made up of a 53 per cent demand and a 47 per cent energy charge. That demand charge is metered on the kilowatt peak attained at the highest one hour (it used to be 15 minutes) interval in the month. The peak demand of the customer has no necessary relationship to the system peak demand; indeed, it might fall in the system's off peak period. The consumer is burdened for the whole month with this peak demand charge (which represents more than half of the total). A demand charge is not a charge for use of the commodity (which is what the customer should pay for), but an arbitrary capacity charge with little relevance to cost. It is, as the National Poverty Coalition argued in the 1979 rate hearings summation, "a concealed form of customer charge having a 'front-end load' feature which greatly raises the per unit cost for a low load customer. It subsidizes and encourages the high load factor customer."
6. Energy costs are highest at the peak load period when the most inefficient generating plants must be brought on the system, or when new facilities must be built to meet them. It is highly desirable, therefore, to encourage shaving those peaks when they appear daily or seasonally. In the latest OEB hearings there was unanimous support, in principle, for tracking the true costs of electricity through daily and seasonal rates, but it was agreed that both should be implemented at the same time, and that the public perception about seasonal rates, notably in the North is so hostile, that neither should be introduced until this perception can be met. If the perception is wrong, as Hydro argues, then it should be corrected; if the perception is correct, then variables should be introduced in the rate structure so as to remove the season inequity imposed in any region.
7. Hydro rate structure is based on the average cost of generation in the system. This means that the higher per unit cost of new plants are averaged into the lower costs of hydraulic generation, and send a false pricing signal to the consumer. This is particularly the case in Ontario Hydro with its massive expansion of nuclear plants whose high capital costs are buried in the system's average. This problem is compounded in Ontario because of Hydro's accounting procedures: the cost of a new plant, including interest charges on money borrowed during the construction, is capitalized and does not affect the rates until the plant delivers electricity to the grid. In contrast, TVA phases the interest charges into the rate base during the construction period so that the consumer has a more realistic appreciation of the costs of new generation. Once again, it is interesting to recall that the Hydro Study Team, reporting on rate reform in 1975, recommended that electricity should be priced on its marginal or replacement cost. Replacement costs must be more accurately reflected in the rate structure. Otherwise the consumer lives for years without any realistic appreciation of the costs being built into the system.

8.

ONTARIO HYDRO: MOTHBALLING PROGRAM

<u>Development/ Station</u>	<u>History</u>	<u>Mothballed Capacity</u>	<u>Capital Cost</u> (\$ million)
<u>A. FOSSIL</u>			
<u>Wesleyville</u>	<ul style="list-style-type: none"> - planned in 1971 - postponed in 1976 - stopped in 1979 - WRITTEN OFF 1980 	1100 MW.	272
<u>R.L. Hearn</u>	<ul style="list-style-type: none"> - built in 1951 - converted in 1970s - MOTHBALLED - 4 units 1979 - MOTHBALLED - 1 unit 1980 - MOTHBALLED - 1 unit 1982 - MOTHBALLED - 2 units 1983 	1200 MW.	166.3
<u>J.C. Keith</u>	<ul style="list-style-type: none"> - built in 1951 - mothballed in 1976 - renovated - restarted in 1981 - MOTHBALLED 1983 (4 units) 	264 MW.	73.2
<u>Lennox</u>	<ul style="list-style-type: none"> - begun 1970 - built 1976/77 - MOTHBALLED 2 units 1979 - MOTHBALLED 2 units 1982 	2,295 MW.	493.3
<u>Thunder Bay</u>	<ul style="list-style-type: none"> - Unit 1 begun 1958 - in service 1963 - mothballed until 1966 - began Units 2 & 3 1975 - completed unit 2 - 1981 - completed unit 3 - 1983 - MOTHBALLED UNIT 1 - 1982 	100 MW.	32.7
<u>Lakeview *</u>	<ul style="list-style-type: none"> - built 1961 - modified 1970 - TO BE MOTHBALLED 2 units - 1984 - TO BE MOTHBALLED 2 units - 1985 	1200 MW.	(155)
		deferred because of retubing units 1 & 2 at Pickering	
<u>Atikokan</u>	<ul style="list-style-type: none"> - begin 1977 - 1 unit (of 2) cancelled 1979 	206 MW.	666

<u>Development/ Station</u>	<u>History</u>	<u>Mothballed Capacity</u>	<u>Capital Cost</u> (\$ million)
<u>Onakawana</u> **	- planned 1979 - studied to 1982 - CANCELLED 1982	(1,020 MW.)	5
<u>CTU's</u> - 15 out of 52 (combustion turbine units)	- MOTHBALLED (1981)	206 MW.	N/A

B. HYDROELECTRIC

<u>Little Jackfish</u>	- planned 1978-79 - DEFERRED indefinitely 1983	(140 MW.)	5.5
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C. NUCLEAR

<u>Bruce HWP 'A'</u>	- bought from AECL 1973 - TO BE MOTHBALLED 1984-85		253
<u>Bruce HWP 'C'</u>	- begin 1974 - CANCELLED 1975		69.4
<u>Bruce HWP 'D'</u>	- begin 1974 - 1st half MOTHBALLED 1979 - 2nd half MOTHBALLED 1982		419

THE BOTTOM LINE: MOTHBALLED COST: \$2.5 BILLION

* Lakeview total capacity was 2400 megawatts and total capital cost was \$310 million.

** Onakawana was scrapped at the planning stage.

REFERENCE COPY

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